

**REMARKS**

Support for the amendments to claim 6 can be found on page 6 of the specification, in the paragraph bridging pages 6 and 7. No new matter is introduced into the claim through the amendments set forth above.

Claims 6, 8, 9, 11, 13, 20 and 24, all of the pending claims, have been rejected under 35 U.S.C. §112, second paragraph, on the basis that claim 6 is indefinite on several grounds. The examiner questioned whether, the recitation in claim 6 regarding the incorporation of two or more bulky and lipophilic amino acids in the two sectors flanking the cationic sector, refers to two or more amino acids in each flanking sector or two or more amino acids in total in the flanking sectors. The latter is intended, as is clear from the second paragraph on page 8 of the specification ("where reference is made to introduction of at least 2 amino acids into the flanking sectors it is meant that at least 2 bulky and lipophilic amino acids are introduced into the flanking sectors between them, not at least 2 in each flanking sector").

The examiner also questioned what was meant by the "sector opposite the cationic sector" and asked if the peptide is in a helical wheel representation. This rejection has been obviated by the amendment above to claim 6.

The examiner also noted that when a peptide of the invention is seven amino acids in length, one sector will have one amino acid and another will have two, and he asked how a sector of one amino acid would be substantially equal in size to sectors of two amino acids when one is twice the size of the other. Applicants direct the examiner's attention to the second full paragraph on page 14 of the specification. This paragraph sets forth the Applicants' definition of "substantially equal in size." As is stated in that paragraph, "[c]learly the number of amino acids in the non-cationic part of the peptide will not always be readily devisable by three to delineate the other three sectors. In this case, the two flanking sectors will always have the same number of residues while the opposite sector may have one more or one less residue than the two flanking sectors. Thus it is appropriate to refer to the three sectors other than the cationic sector as being substantially equal in size as it will not always be possible for them to be exactly equal in size." In the scenario described by the examiner, in which the peptide has seven amino acids, the cationic sector will have three amino acids and the opposite sector has two amino acids, leaving one each (both bulky and lipophilic) in the adjacent sectors.

Claims 6, 8, 9, 11, 13, 20 and 24 have been rejected under 35 U.S.C. §102(b) as anticipated by, or under 35 U.S.C. §103(a)

as obvious over Rekdal et al. *J. Peptide Science* 5:32-45 (1999). The examiner asserted that the reference discloses the construction and synthesis of lactoferricin derivatives with enhanced anti-bacterial activity. The examiner characterized the reference as discussing lipophilic modifications of the non-basic part of the peptide. The reference disclosed the synthesis of lactoferricin B, which has at least 7 cationic amino acid residues, and taught the synthesis of a modified peptide which has an increase in the lipophilicity and charge asymmetry. This rejection is traversed.

The disclosures in the paper by Rekdal et al. do not anticipate or render obvious the presently claimed invention. The reference only distinguishes between a cationic and a non-cationic zone. In contrast, the present invention claimed identifies four zones within the peptide of interest--a cationic sector, and three further sectors which are substantially equal in size. With regard to these three further sectors, the claimed invention further distinguishes between the two sectors flanking the cationic sector and the sector which is opposite the cationic sector when the peptide is considered as an  $\alpha$ -helical wheel, and the present claims require that the bulky and lipophilic groups should be incorporated into the flanking sectors. As these key features of the present invention are not taught or suggested in

the cited reference, the reference does not anticipate or render obvious the claimed invention.

In view of the foregoing amendments and discussion, applicants respectfully submit that the pending claims of this application are in condition for allowance.

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